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ABSTRACT

The Internal-External (I-E) Locus of Control scale (Rotter, 1966) was administered to 185 male and 185 female university students. The resulting scores were factored, producing two factors for males and four for females. The male factors were the generally-accepted "luck" and "powerful others"; for women, however, the "powerful others" dimension appeared to separate into three concepts: (1) a woman's perception of her ability to gain influence over others (i.e., to become a "powerful other"); and (3) her reaction to judgments of her performance by authority figures. The implications of these results are discussed. (Author)

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Multidimensionality of Locus of Control in Females

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Abstract

The Internal-External (I-E) Locus of Control scale (Rotter, 1966) was administered to 185 male and 185 female university students. The resulting scores were factored, producing two factors for males and four for females. The male factors were the generally-accepted "luck" and "powerful others"; for women, however, the "powerful others" dimension appeared to separate into three concepts: (1) a woman's perception of her ability to influence persons and events in the political sphere, (2) her ability to gain influence over others (i.e., to become a "powerful other"), and (3) reaction to judgments of her performance by authority figures. The implications of these results are discussed.

The Internal-External (I-E) locus of control scale, which attempts to measure the degree to which a person believes that outcomes in one's life are due to one's own efforts (internal) as opposed to chance and other factors which cannot be controlled (external), was introduced by Rotter in his 1966 monograph. In the intervening years a large body of research has appeared employing the I-E scale to relate this variable to other personality dimensions (Throop & MacDonald, 1971). Most of the published reports treat the I-E scale as unidimensional, but a number of studies have suggested the presence of two or more subfactors within the instrument. Mirels (1970), Reid and Ware (1973), and Abrahamson et al. (1973) have generally agreed that the two subfactors can be described as (1) the importance of luck or chance vs. hard work in one's personal life, and (2) the individual's perception of his/her ability to influence events in the socio-political sphere. Levenson (1974) has aptly named these factors "luck" and "powerful others", and has developed a new I-E scale, expanded in length, which more fully explores the influence of Factor II and refines the questions pertaining to Factor I. In addition, Abrahamson suggested the possibility that a third factor might be present which he terms "likability." This factor deals with an individual's perceived capacity to elicit empathy in others -- that is, to be liked. The present study seeks to clarify the published reports on the multidimensionality of the I-E scale by replicating the factor analysis carried out by other authors.

METHOD

Three hundred seventy students (185 male and 185 female), representing a heterogeneous mixture of class levels and major fields of study, were administered Rotter's I-E locus of control scale. The scale was scored in the external direction

(i.e., a high score indicates externality), and the 23 relevant items were factored by the principal-axes method with squared multiple correlations inserted in the diagonal. A minimum eigenvalue of 1.0 was allowed for computation of components; this yielded 7 factors for the men and 8 for the women (separate analyses were performed for each sex). The results at this stage of the computation are shown in Table I.

Comparison of the results in Table I with the reported results of Mirels, Reid & Ware, and Abrahamson et al. shows that the present study is in general agreement; Factors 1 and 2 together account for 27.1% of the variance for the males and 24.3% for the females. Since the first four factors each account for at least 6% of the total variance for both sexes, they were rotated to final form using Varimax orthogonal rotation. The resulting factor loadings are presented in Table II.

RESULTS

In Table II, all I-E questions loading at least .30 on a given factor are indicated by an asterisk, and are totaled at the bottom of the table. We note that the sexes have in common 5 items loading high on Factor I (6 if we include the .29 female loading on item 15), all 4 on Factor II, and none on Factors III and IV.

Scores for each of the factors were calculated from the coefficient matrix produced by the factoring procedure. The intercorrelations among the four factors were determined by calculating Pearson product-moment correlation coefficients for the factor scores; only very weak correlations were present among the factors, implying that each factor is truly measuring a unique personality dimension. (r ranged from 0.06 to 0.15).

Since there are so few items loading high on Factors III and IV for the

males, it would appear that we can safely conclude that only Factors I and II are important for the males. Comparisons of the specific items loading high on these two factors with other published results show that 6 of our 9 items on Factor I agree with Mirels' findings, and all 9 agree with Abrahamson; all 4 of our items on Factor II agree with both other studies. Thus, we can conclude that there are indeed two dimensions, "luck" and "powerful others," to the I-E scale for males.

On the other hand, the appearance of 5 items loading high on Factor III and 6 on Factor IV for the females indicates that there is a more complex structure in the I-E scale when measuring women's locus of control. Again we find a good deal of agreement with Mirels and Abrahamson on Factors I and II, but the particular items loading high on each factor suggest that the more general concepts of "luck" and "powerful others," which are appropriate for males, must be further refined for proper analysis of female I-E scores.

DISCUSSION

Items loading high on Factor I suggest that this dimension is assessing the individual's perception of her ability to determine what happens in her own life (control vs. lack of control). Factor II seems to explore a woman's perception of her ability to <u>influence</u> persons and events in the political sphere, as opposed to her feeling of helplessness in the face of "powerful others." Factor III, (called "likability" by Abrahamson), considers the extent to which a person believes she can <u>become</u> a "powerful other," gain control over others and attain positions of influence. This factor assesses the respondent's view as to whether ability and hard work, or merely "getting the breaks" is the important key to success. Finally, Factor IV concerns another facet of the "powerful others" concept: the respondent's feeling towards authority figures (especially teachers) who have an opportunity to judge her performance and thus

have direct influence over her attainment of important goals. The internal subject attributes the ratings as proceeding directly from her own performance, while the external subject views them as products of chance or other irrelevant factors.

In short, we see that for women Factor I, which deals with luck vs. hard work and ability, is broader in scope than the other three. These latter concern refinements of the "powerful others" concept - a woman's ability to have some impact on powerful others, and the circumstances she perceives as influencing her attainment of powerful-other status. As a possible explanation for the importance a woman places on these nuances of the "powerful others" idea, one may observe that females have assumed a more dependent orientation with respect to authority figures than have males in our society. Consequently, they are more aware of the impact others have on their lives, and would be more sensitive to the shades of difference implied by the multidimensional "powerful others" concept.

Another possible reason for the different pattern in female responses may be due to the wording of the I-E scale itself. Since most of the items are written in the third person, female respondents may be viewing the concepts in terms of how they apply to others rather than personalizing their responses.

A number of research studies (e.g., Hamsher et. al. (1968), Silvern and Nakamura (1971), MacDonald (1972)) which attempted to correlate locus of control with other variables have been successful in obtaining significant results for the male population only; female I-E scores failed to show any relationship with the other variables under study. The results of the present study may indicate that the presence of four subfactors in the I-E scale is responsible for this failure. In 1975, Rotter acknowledged that determining subfactors of the I-E scale would be a useful procedure if it could be shown that these subfactors significantly

correlate with a criterion variable when correlations between that variable and the total I-E score are non-significant. A pilot study which was conducted subsequent to the primary research described in this paper produced just such a result. The I-E scale and a questionnaire designed to assess the student's satisfaction with her major course of study were administered to 82 females. There was no significant correlation between the total I-E score and satisfaction with major; however, when factor scores were calculated and correlations were made between each subfactor and the criterion variable, significant correlations at the .05 level were found with Factors I, III, and IV.

In future studies, our pilot study shows that researchers might want to correlate scores on each of the subfactors with criterion variables; this procedure may lead to a resolution of the difficulties found to date. In addition, it may be that further refinement of Rotter's scale is needed in order to assess female locus of control. Further research might involve rewriting the questions to have an exclusively first-person orientation. Thus, the female respondent will be encouraged to personalize her reaction and perhaps reflect a more accurate picture of her locus of control.

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Table I

Preliminary Results of Principal-Axes

Factor Analysis, Before Rotation

	MALES			FEMALES		
Factor	Eigenvalue	% of Variance	Cum%	Eigenvalue	% of Variance	Cum%
1	4.33	18.8	18.8	3.83	16.6	16.6
2	1.90	8.2	27.1	1.77	7.7	24.3
3	1.56	6.8	33.8	1.65	7.2	31.5
4	1.43	6.2	40.1	1.41	6.1	37.6
5	1.22	5.3	45.4	1.33	5.8	43.4
6	1.18	5.2	50.5	1.22	5.3	48.7
7	1.05	4.6	55.1	1.11	4.8	53.5
8	----	----	----	1.03	4.5	58.0

Table II

Rotated Factor Loadings on 4 Factors

	MALES				FEMALES			
FACTOR	I	II	III	IV	I	II	III	IV
Item								
2	.58*	-.09	-.13	.22	.34*	-.26	.22	.01
3	-.02	.19	.02	.22	.20	.19	.05	.24
4	.10	.25	.22	.09	.30*	.18	.07	.30*
5	.20	-.04	.46*	.11	.06	.00	.12	.50*
6	.33*	.14	.26	.20	.22	.14	.30*	.02
7	.05	.00	.21	.27	.25	.19	-.15	.02
9	.25	.07	-.03	.07	.25	.03	.01	.30*
10	.24	.22	.29	-.18	-.07	.05	.24	.27
11	.58*	.13	.12	.03	.10	.13	.59*	.11
12	.11	.53*	.00	.04	.12	.57*	.08	-.06
13	.47*	.29	.10	-.07	.31*	.11	.13	.11
15	.63*	.18	.13	-.10	.29	.07	.42*	.06
16	.49*	.20	.16	-.10	-.06	.01	.57*	.16
17	.10	.62*	.07	.18	.29	.52*	.31*	-.18
18	.52*	.06	.14	.27	.50*	.03	.24	.30*
20	.00	.28	.28	.36*	.40*	.15	-.09	.17
21	.22	-.05	-.08	.32*	.27	-.01	.13	.06
22	.12	.58*	.05	-.03	.08	.60*	.09	.39*
23	.04	.18	.68*	.01	.20	.01	.06	.35*
25	.50*	.01	.29	.11	.53*	-.11	.04	.20
26	.09	.17	.06	.57*	.40*	.18	-.04	-.04
28	.30*	.07	.13	.07	.40*	.15	.18	.06
29	.17	.48*	.11	.07	.00	.47*	.08	.17
Total Items ≥.30	9	4	2	3	8	4	5	6

There are 6 filler items which are not scored.